

**Summary of Progress on the Shore Connection  
Intersection Study**

**“FIVE INTERSECTIONS,  
CUMBERLAND AND CAPE MAY COUNTIES, NJ”**

**Prepared for:**

**Shore Connection Committee (SCC) and  
South Jersey Transportation Planning Organization (SJTPO)**

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### **INTRODUCTION**

The initial Shore Connection study began in the summer of 1997 and concluded in November of 1998 with the Shore Connection Committee Report, NJ Routes 55/47 Corridor Transportation Study. This study resulted in an improvement program consisting of recommendations to manage the summer recreational traffic, advocate the Atlantic City Expressway and Garden State Parkway corridors, and investigate various levels of Capital Improvement Programs. The Capital Improvement Program Studies were categorized as Near-Term, Mid-Term and Long-Term. There were five intersections identified as problem areas for Near-Term Capital Improvement Studies that could be advanced immediately by the New Jersey Department of Transportation (NJDOT). They include:

- US 9/CR 550/Sea Isle Blvd. at GSP (Interchange 17) in Dennis Township (including US 9 and CR 550)
- NJ Routes 347/47 in Dennis Township
- NJ Routes 347/47 in Port Elizabeth (Maurice River Township)
- NJ Routes 55/47 in Maurice River Township
- NJ Routes 55/49 in Millville

The consultant for this study, McCormick, Taylor and Associates (MTA), was directed by NJDOT in 2000 to begin the Concept Development Study of the Five Intersections. The concept development phase is the planning part of the NJDOT's five-tiered process consisting of Concept Development, Feasibility Assessment, Final Scope Development, Design Development, and Construction.

### **SUMMARY OF THE STUDY'S TRAFFIC DATA COLLECTION PROGRAMS**

Site visits to the study intersections began in August 2000 when engineers from MTA observed the characteristics of each intersection listed above. Although complete traffic counts were not taken at this time, other measures of effectiveness (MOE's) were observed such as queue length, time of day that the queue peaked, travel times, signal timings and general conditions of the area. In certain cases, such as the Route 347/47 intersection in Dennisville, the area of observation was extended due to obvious causes of congestion (such as the southbound congestion on the Route 47 corridor at Dennisville and extending past Route 83).

In the August of 2001, a complete traffic count program at all study intersections and adjacent intersections was conducted. This included both Automatic Traffic Recorder (ATR) data and turning movement counts. The counts were used to conduct the technical traffic analysis studies.

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Most recently, in the summer of 2002, an additional traffic data collection program was implemented to support this project along with other efforts, which included ATR and turning movement counts in all study areas with the exception of Dennis Township. This served to obtain information regarding the most up to date traffic data that was used for additional traffic analysis.

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### **SUMMARY OF CAPACITY ANALYSIS – EXISTING CONDITIONS**

The results for the studies and observations showed congestion as noted:

#### **1. NJ Route 49 and NJ Route 55 Interchange, City of Millville:**

Millville police indicated that this area sees some of its worst congestion on Friday evenings and early afternoons on Saturdays. Our observations during the summer of 2000 indicated that traffic periodically builds up to a ½ mile on the southbound off-ramp, spilling over onto the NJ Route 55 expressway and causing potential safety problems. It was also observed that the time for a vehicle to get through the signal at the southbound off-ramp exceeds 4 minutes; which indicates a failing Level of Service (LOS). Analysis based on 2002 traffic data yielded the southbound approach delay on the ramp is 143.2 seconds per vehicle; a LOS of F. This means that delays are extremely long, and most vehicles must wait through several signal cycles to proceed. Intersection capacity analysis, based on 2001 data, indicated that during a typical Summer Saturday peak hour, the intersection operates with 59.2 seconds of average delay per vehicle at a LOS E. This means that nearly all vehicles have to stop. In 2002 average delays increased to 101.4 seconds per vehicle, yielding a LOS of F.

#### **2. NJ Routes 47 and 55 Intersection, Maurice River Township:**

Slightly congested conditions were observed during the summer of 2000, in the southbound direction on a typical summer Saturday. Congestion is due to the termination of the Route 55 expressway onto the local arterial, Route 47. Using traffic data from August 2002, capacity results indicated that the southbound approach of NJ Route 55 was a LOS A (7.4 seconds of delay) on Saturday. On Sunday, capacity analysis indicated that the northbound approach was a LOS B with only 10.5 seconds of delay reported.

Intersection capacity analysis, based on the previous summer conditions of 2001, indicates that during the busiest (peak) hour of a summer Saturday and the busiest hour of a summer Sunday, this intersection operates at a LOS C (22.7 seconds average delay per vehicle) and B(15.6 average delay per vehicle) respectively. A LOS C indicates that operations still would be considered good, and a LOS B indicates that the intersection still maintains excellent conditions. Traffic volumes and conditions observed in 2002, indicate an intersection LOS of A, almost no delay.

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### **3. NJ Route 47, CR 347 and CR 670 Intersection, Maurice River Township:**

At this location, relatively severe southbound congestion is typically seen Friday evenings and Saturday afternoons in the summer while the congestion problem shifts to the northbound direction on typical summer Sundays. This type of data collection is variable and therefore, although conditions were only observed to be failing in 2000, it is expected that this intersection will continue to fail often during the summer months (*as this is frequently observed by residents of the area*). Conditions observed in the years 2000, 2001, and 2002 have consistently seen significant congestion in the area of two signalized intersections (CR 670 and NJ 47, and CR 670 and CR 347).

Conditions were observed to be the worst in 2000. On that Saturday the southbound time in queue was observed to be up to 90 seconds per vehicle and the northbound time on Sunday exceeded 8 minutes per vehicle in queue, indicating a failing LOS. Sometimes it was observed that northbound queues on Sunday were over 2 miles (also indicating a failing LOS) and southbound queues exceeded 1000 feet. The southbound congestion for Saturday 2002 was observed to be significantly less than in past years with an average delay of 29.6 seconds/vehicle.

Data collection in 2001 took place during an overcast day and therefore intersection capacity data yielded an intersection LOS C for Saturday and LOS D for Sunday. Intersection capacity analysis, based on data collected in 2001, indicates that both intersections are operating at a LOS E on a summer Saturday, indicating that nearly all vehicles approaching the intersection have to stop. On Sunday the intersection of CR 670 and CR 347 operates at LOS C (31.2 delay per vehicle) with the northbound approach also operating at LOS C (30.7 seconds per vehicle), while CR 670 and NJ 47 operates at LOS B (12.6 delay per vehicle).

### **4. NJ Route 47 and CR 347, Dennis Township**

Observations for this intersection in Dennis Township have consistently indicated severe back up and congestion on both southbound approaches on Summer Saturdays. It is important to note that both Route 347 and Route 47 *southbound approaches* sometimes fail with up to five minutes of delay per vehicle. On Saturday, August 17 2002, southbound Route 347 failed at 82.7 seconds/vehicle and Route 47 failed at 198.4 seconds/vehicle. On Sunday, the northbound approach problem is significantly diminished with a LOS C (22.3 average delay per vehicle) as most traffic flows smoothly through the northbound approach of this intersection. The intersection capacity analysis indicates that the whole intersection operates at a LOS of F (80.2 seconds average delay per vehicle) on Saturdays.

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### **PROPOSED IMPROVEMENT OPTIONS AND PUBLIC INVOLVEMENT FEEDBACK**

The Shore Connection Committee (SCC) met with NJDOT and MTA in February and March of 2001 where the preliminary existing conditions and project needs were presented using display boards. The preliminary traffic analysis was also presented via computer display. Discussions and brainstorming took place at both meetings regarding the general nature of each intersection, along with new ideas for improvements. Opinions of the SCC varied greatly from long-term improvements (complete Route 55) to short-term drainage and signing concerns. (The signing discussion focused on alternate route signing, intended to more evenly distribute vehicles headed to the Shore on the local roadway network. This was implemented by NJDOT and Cape May County just prior to the summer of 2001). In the summer of 2001, the public involvement programs that concentrated on each separate municipality began. In August the team met with Dennis Township and City of Millville officials and in September the team met with Maurice River Township officials. These meetings were designed to gather input on which improvement concepts would and would not be supported by each municipality.

#### **NJ Route 49 and NJ Route 55 Interchange - City of Millville, Cumberland County:**

In October 2001, the first Public Information Center (PIC) for the City of Millville was held at the senior high school. In an open-house format, NJDOT and MTA presented the two separate improvement options for the intersection of the Route 55 southbound off-ramp with Route 49. These improvement options were a cloverleaf ramp addition and an additional left turning lane on the NJ Route 55 off-ramp. The signal at this intersection had been optimized the previous summer to allow for the maximum flow possible on the Route 55 off-ramp. Approximately 30 residents circulated the room where representatives from NJDOT and MTA explained the NJDOT project process along with the alternatives.

The residents' concerns and questions, such as the length of construction and disruption to their neighborhoods, were also addressed. The three alternatives discussed at the meeting were:

1. Adding an additional left turn lane on the off-ramp and running that lane along Route 49 until the vicinity of Court or Crescent Blvd
2. Adding an additional ramp in the southwest corner of the 49/55 area, creating a full "cloverleaf" interchange

Preliminary capacity analysis indicates that adding an additional left turn lane on the southbound off-ramp and running that lane along Route 49 until Court Blvd., will significantly reduce delay and the associated queuing on the off-ramp. This improvement is expected to improve the ramp approach LOS from an F to a C on a summer Saturday. In addition, delay is expected to reduce approximately 85% from 143 seconds/vehicle to 22 seconds/vehicle.

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The cloverleaf ramp option would be expected to have significant right-of-way impacts (residential takes) and higher construction costs. However, preliminary analysis indicates that this option would result in almost no delay, as the current signal would no longer be necessary.

As expected, residents living within the potential cloverleaf area did not approve of this alternative because it could potentially take their homes. Residents living along Route 49, did not like the idea of widening this road in front of their houses because of safety concerns. It was decided to recommend the widening of NJ Route 49 over the cloverleaf option due to the high impacts associated with the cloverleaf. However, due to the general resident dissent over the interchange concepts and the desire to "build 55 (extension) or nothing at all", the City of Millville did not pass a resolution to approve either option.

To conclude, the final recommended improvement option for this interchange in the City of Millville is:

- Extend the Route 55 off-ramp so queuing does not back up onto the expressway
- Add an additional left turn lane at the signal
- Extend the extra lane along Route 49 until the vicinity of Court Blvd.
- Add a new traffic signal at the intersection of Route 49 and Court Blvd.
- Incorporate new, uniform sidewalks along the newly widened Route 49

### NJ Route 55 Southbound Off-ramp at NJ Route 49 - 2002 Traffic Data

| "Existing Conditions" Delay | New Delay  | Improvement | LOS Improvement |
|-----------------------------|------------|-------------|-----------------|
| 143 sec/veh                 | 22 sec/veh | 85%         | F to C          |

\*This signal was optimized in 2000 to allow for maximum flow on the southbound ramp approach.

### **NJ Route 47, CR 347 and CR 670 - Maurice River Township, Cumberland County**

The Maurice River Township (MRT) Public Information Center (PIC) was held at the local Maurice River Township elementary school in November 2001. Here, the team presented possible improvement options for two intersections in the township: the "triangle" of Route 47, Route 347, and Mauricetown Road (CR 670); and the termination of Route 55 at Route 47 in Port Elizabeth.

For the intersection of Route 47, 347, and 670, the option presented was a "Florida T" configuration that would allow for continuous-green northbound travel lane on Route 347 and a signalized left hand turn lane onto CR 670. The residents who attended the PIC expressed strong opposition to this option due to the expected continuous flow of northbound traffic along with the anticipated higher travel speeds that cause difficult access/egress issues located further north on Route 47 in Port Elizabeth near the area

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of the firehall, post office and elementary school. Not formally presented, but discussed in passing at the PIC, was an additional lane option at this location. This improvement option was further developed following the PIC.

This original "Additional Lanes Option", which allowed for two limited length additional lanes in both directions of NJ Route 347, was analyzed for the April 2002 meeting with Maurice River Township. **It is important to note that observations and/or complete data collection efforts were taken during the summers of 2000, 2001 and 2002. Although backups in the summer of 2000 were observed up to 2 miles and delay up to 8 minutes/vehicle on the northbound approach of Route 347 on Sunday, there was not a complete turning movement count taken that year. Because of this, a complete analysis could not be completed for 2000.** Results based on August 2002 traffic, indicated that the southbound, shore bound delay on Saturday would reduce by approximately 59% (from 29.5 seconds of delay/vehicle for the existing conditions to 12.2 seconds of delay/vehicle after the improvement option). Sunday's results indicated that the northbound direction would experience a decrease in delay of approximately 70% (from 30.0 seconds of delay/vehicle for the existing conditions to 9.1 seconds of delay/vehicle with the northbound additional lane). In addition to these studies, NJDOT is investigating signal optimization that would allow for increased northbound "through-put" for Sunday afternoons and evenings.

This "Additional Lane Option" was scaled down due to resident dissent and was redesigned to only allow an additional lane in the southbound direction of Route 347. Based on results of August 2002 traffic volumes, with signal adjustments and a southbound additional lane ONLY, the southbound delay would reduce approximately 56% from the existing conditions, improving the southbound approach LOS from a C (29.5 seconds of delay/vehicle) to a B (12.2 seconds of delay/vehicle).

This recommended option allows for an extra southbound through lane on NJ Route 347 at the intersection with CR 670, to improve southbound capacity at the intersection. This alternative would most likely improve the southbound CR 347 Level of Service on summer Fridays and Saturdays. MRT officials did not look at these options favorably because they anticipated some impact on their community. Additionally, they did not feel that this alternative would eliminate the traffic through their community. Based on the capacity analysis indicating an improvement of traffic conditions in this area and minimal lack of impact on the community, it is recommend to further study the additional southbound lane option for the CR 347 and CR 670 intersection.

Route 347 Northbound at the intersection of Route 347 and 670 – 2002 Traffic Data  
(Existing Conditions vs. Additional NB and SB Lane Option)

| "Existing Conditions" Delay | New Delay | Improvement | LOS Improvement |
|-----------------------------|-----------|-------------|-----------------|
| 30 sec/veh                  | 9 sec/veh | 70%         | C to A          |

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Route 347 Southbound at the intersection of Route 347 and 670 - 2002 Traffic Data  
(Existing Conditions vs. Additional SB Lane Only Option)

| "Existing Conditions" Delay | New Delay  | Improvement | LOS Improvement |
|-----------------------------|------------|-------------|-----------------|
| 30 sec/veh                  | 12 sec/veh | 60%         | C to B          |

[Additionally, NJDOT is presently (10/02) investigating the addition of a northbound lane at the signal of Routes 347 and 670 but only allowing the signal to operate at full capacity on Sunday afternoons and evenings only. However, only a reduced flow would be allowed to flow through during the rest of the week. This would help to ease the concerns of Maurice River Township residents regarding the impact that increased traffic flow would have upon the town.]

### **NJ Routes 55 and 47 - Maurice River Township, Cumberland County**

The improvement options that were discussed and/or analyzed throughout this project process include a Florida T Option and the replacement of the jug-handle with a protected left turn lane. Initially there were only a small amount of opposition regarding the possible installation of a Florida T. This was due to the lack of access issues north of the intersection. However, a resolution was not passed by Maurice River Township on this alternative. As a direct response to this, a new preliminary alternative was proposed. This was the elimination of the jug-handle with the replacement of a left turn lane. No capacity analysis was done on this alternative due to the reaction of officials and residents.

While the Florida T was initially presented for this intersection at the PIC, based on recent 2002 observations and subsequent analysis that indicated an intersection operation of LOS A for both Saturday and Sunday, current conditions do not appear to be problematic. Therefore it is expected that any minor improvements in this area would be of marginal value. No changes or improvement options are recommended to the NJ Route 47 and NJ Route 55 Intersection.

### **NJ Routes 347 and 47 – Dennis Township, Cape May County**

The study team met with Dennis Township on Monday, December 9, 2002 to explore improvements at the intersections and to gain their perspective regarding the improvement options discussed in the past. The following is a brief summary highlighting the discussions and formal consensus reached at that meeting.

MTA presented the improvement of adding an extra northbound lane both before and after the intersection and adding an extra southbound lane before and after the intersection. The pros and cons of each alternative were discussed. There were little objections to the NORTHBOUND Auxiliary Lane option due to little obstructions upstream. Dennis Township Officials expressed dismay as to why we were presenting



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this alternative if we said it wouldn't help the corridor as a whole. The DOT responded that we wanted to **discuss** with them the various options for this intersection and reiterated that it is important to understand that this is a "band-aid" approach and although it reduces the problem at the Route 47/347 intersection, it does not solve the congestion problem of the corridor. The Township would like to see this whole corridor studied together or not at all and would like the DOT to consider the local residents who live in Dennis Township and not just the tourists who travel through it.

### **US Route 9 and CR 550 and US Route 9 and Sea Isle Blvd., Dennis Township, Cape May County**

The intersection of US Route 9 and CR 550 is included in a land development plan that is currently in the works. Included with this plan is an improvement to add an extended right turn lane eastbound on CR 550 to the intersection with US Route 9. The committee did not voice any objections to this

The main sentiment heard from the Township Committee regarding changes and improvements to the Route 9 corridor and intersection with Sea Isle Blvd. included that past plans for this area have not been supported and although the committee did not appear to have major objections to the suggested adjustments to the intersection of US Route 9 and Sea Isle Blvd., they brought it to the attention to all meeting attendees that in the past NJDOT has stopped this improvement due to an important telephone pole that would be expensive to relocate. Lance Weight and Dale Foster both indicated that they did not think the telephone pole would be a problem anymore.

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### **SUMMARY OF MEETINGS AND PUBLIC INVOLVEMENT CENTERS:**

The following is a list of the public involvement efforts with this project:

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|                           |  |
|---------------------------|--|
| <b>February 13, 2001</b>  | Shore Connection Committee Meeting                               |
| <b>March 21, 2001</b>     | Shore Connection Committee Meeting                               |
| <b>August 6, 2001</b>     | Dennis Township officials meeting                                |
| <b>August 13, 2001</b>    | City of Millville officials meeting                              |
| <b>September 19, 2001</b> | Maurice River Township officials meeting                         |
| <b>October 19, 2001</b>   | City of Millville Public Information Center                      |
| <b>November 17, 2001</b>  | Maurice River Township Public Information Center                 |
| <b>April 18, 2002</b>     | follow up meeting with MRT officials and residents               |
| <b>May 6, 2002</b>        | follow up meeting with City of Millville officials and residents |
| <b>September 25, 2002</b> | Concluding Shore Connection Committee Meeting                    |
| <b>December 9, 2003</b>   | Dennis Township Officials Meeting                                |
| <b>May 6, 2003</b>        | SJTPO Technical Advisory Committee Meeting                       |

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**12 Total Meetings**

### **STUDY SCHEDULE**

It is anticipated that the Dennis Township Meeting, held December 9, was the final step in the study process. The results of this meeting will be incorporated into the study reports and they will be finalized. As appropriate, management of the counties and NJDOT will be presented with the analysis and alternatives for their consideration.

Thank you for your assistance in this process,

The Study Team